DOCUMENT RESUME

ED 192 369 CS 205 887

AUTHOR Cronnell, Bruce
TITLE Cause and Effect: An Overview. Technical Note.
INSTITUTION Southwest Regional Laboratory for Educational Research and Development, Los Alamitos, Calif.
REPORT NO SWRL-TN-3-79-16
PUB DATE 31 Oct 79
NOTE 20p.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Communication Skills; Curriculum Development; *Discourse Analysis; Interaction; *Language Usage; Persuasive Discourse; Reading Skills; Teaching Methods; Writing Skills
IDENTIFIERS *Causal Models

ABSTRACT

Noting that identifying and inferring cause and effect relationships is critical to the receptive language use of both listeners and readers, this paper describes the various constructions used to express cause and effect and discusses the problems in comprehending them. Various sections of the paper discuss (1) the form of cause and effect statements, (2) "true" (explicit) cause and effect statements, (3) statements of purpose, (4) conditional statements, (5) inferential cause and effect constructions, (6) statements of concession, and (7) multiple causes and effects. (FL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED192369

SWRL SOUTHWEST REGIONAL LABORATORY
TECHNICAL NOTE

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
SWRL

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

DATE: October 31, 1979

NO: TN 3-79-16

CAUSE AND EFFECT: AN OVERVIEW

Bruce Cronnell

ABSTRACT

Various ways of expressing cause and effect are discussed. True cause-effect relations are described, along with similar relations: purpose, condition, and concession. Single causes and effects are focused on, but multiple causes and/or effects are also noted. Direct statements of cause-effect are described as well as implied cause-effect relations, which must be inferred.

CS205887

This document is intended for internal staff distribution and use. Permission to reprint or quote from this working document, wholly or in part, should be obtained from SWRL, 4665 Lampson Avenue, Los Alamitos, California 90720

CAUSE AND EFFECT: AN OVERVIEW

Bruce Cronnell

The core system of the SWRL Post-Elementary Communication Skills architecture (Cronnell & Humes, 1979) contains two cause-effect objectives for the receptive discourse process (listening and reading):

Identifies stated relationships: cause-effect.
Infers relationships: cause-effect.

Cause-effect is an important part of discourse. It is very common in narrative, both formal and informal. Expository discourse frequently includes explanations of cause and effect. Persuasive discourse may persuade through use of causes and effects.

Cause-effect relations are common in discourse, but they are complex. They may be stated or inferred. They may be "true" cause-effect relations, or they may be similar relations such as purpose, condition, or concession. Causes and effects may be either singular or multiple. The description in this paper of these various relations is preliminary to the design and development of instruction for cause and effect.

The Form of Cause-Effect Statements

Cause-effect statements are commonly in the form of single sentences (except in the case of multiple causes and/or effects, to be treated later). Sometimes two sentences are used, although they frequently can be combined into one sentence. The cause and the effect must be found in two different places: in separate sentences, in separate clauses (in a compound or complex sentence), in a main clause and a phrase, or in the subject and predicate. All of these structures are exemplified in the following sections.

Although causes always precede effects in time, this is not so in syntactic constructions: either the cause or the effect may come first. In some constructions, only one order is possible; in many constructions, both orders are possible. Such constructions are reversible (marked "R" in this paper for the effect-cause order). The cause-effect order maybe easier to comprehend than the effect-cause order because the former corresponds to real-world order.

"True" Cause-Effect*

"True" cause-effect is found in explicit statements of cause and effect. Such statements are usually found within sentences (although occasionally across sentences) and are made explicit by the use of markers that indicate cause-effect. If these markers are recognized, cause-effect can be recognized.

The most obvious and most common cause-effect marker is probably because, which marks a causal subordinate clause, with the effect in the main clause.

Because I studied hard, I passed the test.
R: I passed the test because I studied hard.

(Some authorities suggest that because is more common in the reversed position.) Because can also be used in cleft constructions.

It is because I studied hard that I passed the test.

Several other conjunctions also mark a causal subordinate clause.

*"True" cause-effect is distinguished from the similar constructions of purpose, condition, and concession--all discussed below.

{Since / As / Inasmuch as} I studied hard, I passed the test.

R: I passed the test {since / as / inasmuch as / considering that / seeing that / in that / now that} I studied hard.

When these cause clauses come first in the sentence, they are followed by a comma; when they are last, no punctuation is used. Both since and as have other functions (marking time and comparison, respectively), so they may be somewhat ambiguous. In the reverse form, as seems awkward.

Phrasal markers of cause are also reversible and subject to cleft transformations.

{Because of / As a result of / Owing to / Due to} my studying hard, I passed the test.

R: I passed the test {because of / as a result of / owing to / due to} my studying hard.

Cleft: It was {because of / as a result of / owing to / due to} my studying hard that I passed the test.

When these cause phrases come first in the sentence, they are followed by a comma; when they are not first, no punctuation is used. Use of the two-word preposition due to to mark causality is often frowned upon, but is common.

Result (effect) clauses are not reversible and tend to be more independent of the rest of the sentence; they can even be separate sentences, as illustrated by the common marker so.

I studied hard {,so / ;so / .So} I passed the test.

Unlike sentence-final cause clauses, these sentence-final result clauses must be preceded by punctuation. In fact, the following markers require a preceding semicolon or period. (They are often, but incorrectly, preceded by only a comma, apparently on analogy with so.) Moreover, the markers are generally followed by a comma.

I studied hard; {thus, / hence, / therefore, / as a result, / consequently, / as a consequence, / for that reason,} I passed the test.

The discontinuous markers so...that and such...that also mark result. (The unbroken marker so that indicates purpose [see below] rather than result.)

I studied so hard that I passed the test.
I studied with such concentration that I passed the test.

The so construction is used with adjectives and adverbs; the such construction is used with nouns.

Cause and effect can be expressed through subjects and predicates. In these cases, the reversed form is a passive.

My studying hard {caused / brought about} my passing of the test.

(also: My studying hard caused me to pass the test.)

R: My passing the test was {caused / brought about} by my studying hard.

In one construction, the preposition changes in the reversed form.

My studying hard resulted in my passing the test.

R: My passing the test resulted from my studying hard.

All the "true" cause-effect constructions described above have been either necessarily or optionally in the order cause-effect. However, there are a few constructions that can only occur in the effect-cause order.

I passed the test, for I studied hard.

This is a rather formal construction. The comma is necessary to prevent confusion with the preposition <u>for</u>.

The reason {that / why} I passed the test was {that / because} I studied hard.

The use of <u>because</u> in the above construction is frowned upon, but is especially common in speech.

My passing the test was due to {my studying hard. / the fact that I studied hard.}

The above use of <u>due to</u> is considered correct by authorities.

A question of cause, followed by an answer, also indicates effect-cause.

{Why did you pass the test? / How come you passed the test? / What caused you to pass the test? / What was the cause of your passing the test?} (Because) I studied hard.

The many constructions above are explicit indicators of cause and effect. While there may be other constructions, they are undoubtedly minor.

<u>Purpose</u>

Statements of purpose are not true cause-effect statements. Purposes and causes both may be called reasons and may both be questioned with <u>why</u>. However, rather than a true result, the purpose is a hoped-for result, which may or may not come to pass.

Clausal purpose statements are generally marked with so (that) or in order that and generally use a modal with the verb.

I studied hard {so / so that / in order that} I {might / could} pass the test.

R: {So / So that / In order that} I {might / could} pass the test, I studied hard.

No punctuation is used before purposive so as is used before causal so (see above).

While the above purpose statements indicate a hoped-for result, certain purpose constructions indicate a result that is not hoped for; the purpose in these cases is to guard against undesired possibilities.

I studied hard {in case I had a test. / for fear that I might have a test. / lest I had a test.}

The marker lest is formal, if not archaic.

The above clausal purpose statements are paralleled by phrasal forms, which may be more common.

I studied hard {in order to / so as to / to} pass the test.

R: {In order to / So as to / To} pass the test, I studied hard.

I studied hard {in case of / for fear of} a test.

R: {In case of / For fear of} a test, I studied hard.

In the examples above, the implied subject of the phrase is I; that is, it is the same as the main-clause subject. When the subject of the

verb in the phrase is different from the subject in the main clause, for is used.

I brought the papers for him to sign.
I brought the papers in order for him to sign them.

Conditional Statements

Conditional statements are very similar to cause-effect statements; the condition is like a cause, and rest of the sentence is like an effect. However, conditionals generally indicate events that either have not yet happened or did not happen.

If I studied hard, (then) I would pass the test.
If I study hard, (then) I will pass the test.

R: I would pass the test if I studied hard.
I will pass the test if I study hard.

In both of the above sets, the testing has not taken place yet. In the first sentence of each set, the suggestion is that I will not study hard and therefore will not pass the test. In the second, the suggestion is that I will study and therefore will pass. One conditional form (indicated by tense) suggests that neither the cause nor the effect took place.

If I had studied hard, I would have passed the test.

R: I would have passed the test if I had studied hard.

These sentences mean that I did not study hard and therefore did not pass the test.

When the tense is the same in both clauses of a conditional sentence, a general truth statement is indicated.

If I study hard, I pass tests.
If I studied hard, I passed tests.

R: I pass tests if I study hard.
I passed tests if I studied hard.

These sentences mean something like "Because I always study(ed) hard, I always pass(ed) tests." Similar meanings can be indicated by when(ever),* after, and before.

{When(ever) / After} I study hard, I pass tests.

R: I pass tests {when(ever) / after} I study hard.

I study hard before I pass tests.

R: Before I pass tests, I study hard.

However, the conditional (or cause-effect) meaning of these sentences is not explicit; such inferential meanings are discussed in the following section.

Negative conditions can be indicated by unless.

Unless I study hard, I will not pass the test.

R: I will not pass the test unless I study hard.

Unless is generally the equivalent of if...not; e.g., If I do not study hard, I will not pass the test.

A variety of other forms can introduce conditions; none is very common.

{Provided (that) / Providing (that) / On the condition that / In case} I study hard, I will pass the test.

{Suppose (that) / Supposing (that)} I study hard. I will pass the test.

*Other ever words (e.g., whoever, wherever) may also indicate conditional meanings.

Two additional constructions can indicate conditional statements. In one, the condition is marked with an inverted auxiliary verb.

Had I studied hard, I would have passed the test.

In the other, the condition is an imperative and is followed by and.

Study hard, and you will pass the test.

Inferential Cause-Effect

The cause-effect (and related) constructions discussed so far have been, for the most part, explicit; that is, the cause or effect was explicitly marked. However, cause and effect are often implicitly present and the relations must be inferred.

Two consecutive sentences (perhaps conjoined) may imply cause and effect.

I studied hard. I passed the test.
I studied hard; I passed the test.
I studied hard and I passed the test.
I studied hard and passed the test.

We can infer that the studying caused the passing because of what we know from our real-world experience.

However, two consecutive sentences most frequently do not indicate cause and effect; rather, they may simply indicate consecutive events.

I studied hard. I went to bed.
I went to school. I passed the test.

Clearly, studying hard did not cause going to bed, nor did going to school cause passing the test; these events are related only temporally, not by cause and effect. The when(ever), after, and before constructions discussed under conditionals also most frequently indicate only temporal relations.

Two phrasal constructions may imply cause-effect.

Having studied hard, I passed the test.
Alarmed by the bell, I ran outside.

However, these constructions do not necessarily mean cause-effect; e.g., Having studied hard, I went to bed.

Generally, inferred cause-effect statements are ordered with cause first and effect second, i.e., in order of occurrence. Occasionally the reverse order may be found, but it generally requires a strong and commonly experienced cause-effect relation.

I passed the test. I studied hard.
I'm going to bed. I'm tired.

Causality may be inferred in each of the above, although the second seems to imply effect-cause much more than the first. However, either would be better in the reverse order.

The effect-cause order is natural when a question is the first sentence.

Did you pass the test? Yes (, I passed the test). I studied hard. However, even with questions, cause-effect must be inferred; it is not explicit, as the following counter-example illustrates:

Did you pass the test? Yes. I got an A.

Unlike studying hard, getting an A is not a cause. However, this can only be determined on the basis of experience.

The reader or listener who has not had experience with the concepts expressed in an inferred cause-effect relation cannot infer cause and effect. Similarly, when concepts are unknown, cause-effect may be inferred when it is not implied. The following sentence demonstrates this problem:

She ate some tafa. She drank a lot of water.

Unless we know what kind of food tafa is, we cannot determine whether

eating the tafa caused the drinking of water or the two events are simply related to time. Tafa may be salty food; then we suspect causality.

> She ate some salty food. She drank a lot of water.
> i.e., Because she ate some salty food, she drank a lot of water.

On the other hand, if tafa is not salty food, causality is probably not present.

> She ate some fruit. She drank a lot of water.
> i.e., She ate some fruit; at the same time, she drank a lot of water.

Thus, while inferring cause-effect may be very important to comprehension, it is difficult because it requires both literal comprehension of the text and sufficient real-world knowledge to determine whether a cause-effect is reasonable.

Concession

Concession statements frequently indicate lack of cause-effect;* an event does not result in its expected effect. The expected effect is sometimes marked.

I studied hard; { however, / nevertheless, / nonetheless, / still, / yet / but } I didn't pass the test.

The markers yet and but are not followed by punctuation; the others are followed by a comma. The marker but may be preceded by no punctuation or by a comma; all of the markers can be preceded by a semicolon or a period.

*Concession may be viewed as the opposite of cause-effect; cf. Tregidgo (1962, page 228).

The first four markers can be placed in other positions within the clause expressing the expected effect; e.g.:

I studied hard; I didn't pass the test, however.
I studied hard; I, nevertheless, didn't pass the test.
I studied hard; I didn't, nonetheless, pass the test.
I studied hard; I still didn't pass the test.

While such movement is possible, it sometimes produces awkward sentences.

The marker still can be redundantly used to indicate concession in sentences with other concession markers.

I studied hard; { nonetheless, / nevertheless, / however, / yet / but } I still didn't pass the test.

In the examples given above, the expected result has been marked. The event that was expected to cause a result is also commonly marked.

{ Although / Though / Even though / Even if / While / Whether or not } I studied hard, I (still) didn't pass the test.

R: I (still) didn't pass the test { although / though / even though / even if / whether or not } I studied hard.

The marker while is somewhat ambiguous since it also marks time clauses; it cannot be reversed for concession. It is best used when the verbs in the two clauses are in different tenses; e.g., While I had studied hard, I (still) didn't pass the test.

The event that was expected to cause a result may also be expressed in phrasal form.

The first four markers can be placed in other positions within the clause expressing the expected effect; e.g.:

I studied hard; I didn't pass the test, however.
I studied hard; I, nevertheless, didn't pass the test.
I studied hard; I didn't, nonetheless, pass the test.
I studied hard; I still didn't pass the test.

While such movement is possible, it sometimes produces awkward sentences.

The marker <u>still</u> can be redundantly used to indicate concession in sentences with other concession markers.

I studied hard; { nonetheless, / nevertheless, / however, / yet / but } I still didn't pass the test.

In the examples given above, the expected result has been marked. The event that was expected to cause a result is also commonly marked.

{ Although / Though / Even though / Even if / While / Whether or not } I studied hard, I (still) didn't pass the test.

R: I (still) didn't pass the test { although / though / even though / even if / whether or not } I studied hard.

The marker <u>while</u> is somewhat ambiguous since it also marks time clauses; it cannot be reversed for concession. It is best used when the verbs in the two clauses are in different tenses; e.g., While I had studied hard, I (still) didn't pass the test.

The event that was expected to cause a result may also be expressed in phrasal form.

{Despite / Regardless of / In spite of / For all / Notwithstanding} my studying hard, I (still) didn't pass the test.

R: I (still) didn't pass the test(,) {despite / regardless of / in spite of / for all / notwithstanding} my studying hard.

With adjectives (and adverbs), inverted structures are sometimes used.

Hard {as / though} I studied, I (still) didn't pass the test.

R: I (still) didn't pass the test, hard {as / though} I studied.

{However / No matter how} hard I studied, I (still) didn't pass the test.

R: I (still) didn't pass the test, {however / no matter how} hard I studied.

When no concession marker is used, concession must be inferred.

I studied hard. I didn't pass the test.

However, as indicated in the previous section, such inferrence depends on real-word knowledge.

Multiple Causes and Effects

For simplicity, the previous discussion has centered on cases with a single cause and a single effect However, there may be more than one cause and (less often) more than one effect. The following discussion will be limited to multiple causes; its extension to multiple effects is fairly straightforward and is left to the reader. So that the text does not become overcrowded with lengthy examples, the following set of causes and the following single effect will be assumed throughout:

Causes: I went to every class and took extensive notes. I read all the assignments and studied very hard. In fact, I stayed up all night on the night before the exam.

Effect: I passed the test.

The following discussion parallels--but only briefly--that in previous sections; most of the constraints discussed there also apply below.

"True" cause-effect. After the causes are stated, they may be all tied together with a connector before the effect is stated.

{Because / etc.} I did all that, I passed the test.

{Because of / etc.} all this, I passed the test.

A simpler way of relating multiple causes to an effect is to use a result word or phrase before the result.

{Therefore, / etc.} I passed the test.

Subjects and predicates may also be used.

All of this {caused / brought about} my passing of the test.

All of this caused me to pass the test.

All of this resulted in my passing the test.

In general, these forms for relating multiple causes to an effect are not reversed, although reversibility is sometimes possible; e.g., I passed the test because of all this; I passed the test for all of these reasons.

Purpose. After the causes are stated, they may be all tied together with a connector before the purpose (desired effect) is stated.

I did all of this {so / etc.} I {might / could} pass the test.

I did all of this {in order to / etc.} pass the test.

Again, the forms are not generally reversed, although it is possible.

Condition statements. After the conditions are stated, they may be all tied together with a connector before the result is stated. However, more complex verb forms must be used.

> I should have gone to every class and taken extensive notes. I should have read all the assignments and studied very hard. In fact, I should have stayed up all night on the night before the exam. If I had done all of this, I would have passed the test.

Other ways of expressing conditionals can be generated from those presented in the earlier section. One of the simplest is the use of then to imply a prior (unstated) if; e.g., Then I would have passed the test. This use of then is quite different from its basic use as a time connective (e.g., I got up; then I got dressed).

Inferential cause-effect. Multiple causes and/or effects are not necessarily explicitly stated; rather, they must be inferred.

> I went to every class and took extensive notes. I read all the assignments and studied very hard. In fact, I stayed up all night on the night before the exam. I passed the test.

Concession. Multiple concessions may be tied together before the expected (but lacking) result is stated.

{Although / etc.} I did all this, I (still) didn't pass the test.

Quite commonly a single concession word is used.

{However, / etc.} I (still) didn't pass the test.

Conclusions

This paper has described the constructions used to express cause-effect relationships and the problems in comprehending such constructions. Identifying and inferring cause-effect relations is critical to the receptive language use of listeners and readers. In addition, speakers and writers must be able to use such constructions to express cause-effect relationships. This description and discussion of cause-effect can be used in the design and development of instruction.

Bibliography

Cronnell, B. and Humes, A. Post-elementary communication skills architecture: Core system (TN 3-79-11). Los Alamitos, Calif.: SWRL Educational Research and Development, 1979.

Hornby, A. S. A guide to patterns and usage in English. London: Oxford University Press, 1954.

McCrimmon, J. M. Writing with a purpose. Boston: Houghton Mifflin, 1967. 4th edition.

Pearson, P. D. and Johnson, D. Teaching reading comprehension. New York: Holt, Rinehart and Winston, 1978.

Perrin, P. G. Writer's guide and index to English. Chicago: Scott, Foresman, 1965. 4th edition.

Quirk, R., Greenbaum, S., Leech, G., and Svartvik, J. A grammar of contemporary English. New York: Seminar Press, 1972.

Rorabacher, L. E. Assignments in exposition. New York: Harper & Row, 1970. 4th edition.

Tregidgo, P. S. Practical English usage for overseas students. London: Longmans, 1962. 2nd edition.